

ADVANCE

A NOVA | MASON PARTNERSHIP

A.S. Engineering /
B.S. Bioengineering Pathway
2021-2022

A.S. Engineering

ADVANCE Program Milestones

ADVANCE Milestone Requirements: All ADVANCE students must adhere to the following requirements. For Milestones #1-#3, failure to meet these milestones will prevent a student from matriculating to Mason and/or result in termination from ADVANCE. For Milestones #4-#6, failure to meet these milestones may delay matriculation to Mason.

1. Students must complete their NOVA degree within 4 years of being admitted into ADVANCE. Students are highly encouraged to be continuously enrolled at NOVA/Mason to support progress towards degree completion.
2. Students must maintain a minimum 2.5 cumulative GPA at NOVA and must have a minimum 2.5 GPA upon matriculation to Mason.
3. Students who wish to enroll at Mason for the fall semester must apply for NOVA graduation by March 1 for spring graduation or June 1 for summer graduation. Students who wish to enroll at Mason for the spring semester must apply for NOVA graduation by October 1 for winter graduation.
4. Students must begin developmental coursework in no later than the first semester in ADVANCE at NOVA.
5. Students must take first college-level MTH course and ENG 111 in the semester immediately following the completion of any MDE or EDE courses (excluding summer).
6. In the first 30 credits, students must:
 - a. Complete ENG 111 and ENG 112 with a C or better.
 - b. Complete the first college-level MTH course with a C or better.

ADVANCE Program-Specific Requirements: All ADVANCE students in this degree program must adhere to the following requirements prior to matriculation. Failure to do so may prevent a student from matriculating into this program at Mason or progressing in coursework at Mason.

1. Engineering students must begin the calculus sequence within the first 30 credits and complete Calculus I and II with a B or better.
2. Bioengineering students must complete MTH 267 Differential Equations with a B or better.¹
3. Bioengineering students must complete Matlab applications concurrently with MTH 266.²

	NOVA DEGREE REQUIREMENT	Credits	Courses	MASON TRANSFER EQUIVALENT	MASON CORE/DEGREE EQUIVALENT
1	SDV Course	1	SDV 100 College Success Skills OR SDV 101 Orientation to Engineering	UNIV 100	General Elective
2	ENG 111	3	ENG 111 College Composition I	ENGH 101	General Elective
3	CST Course	3	CST 100 Principles of Public Speaking OR CST 110 Introduction to Communication	COMM 100 COMM 101	Oral Comm
4	Humanities/Fine Arts #1	3	ART 100 Art Appreciation OR ART 101 History and Appreciation of Art I OR ART 102 History and Appreciation of Art II OR CST 130 Introduction to Theatre OR CST 151 Film Appreciation I OR MUS 121 Music Appreciation I	ARTH 101 ARTH 200 ARTH 201 THR 101 ENGH L372 MUSI 101	Arts
5	MTH 263	4	MTH 263 Calculus I	MATH 113	Quantitative
6	Social/Behavioral Sciences #1	3	HIS 101 History of Western Civilization I OR HIS 102 History of Western Civilization II OR HIS 112 History of World Civilization II	HIST 101 HIST 102 HIST 125	Western Civ
7	EGR 121	3	BENG 101 Intro to Bioengineering	BENG 101	Major
8	ENG 112	3	ENG 112 College Composition II	ENGH XXX	General Elective
9	MTH 264	4	MTH 264 Calculus II	MATH 114	Major
10	PHY 231	5	PHY 231 General University Physics I	PHYS 160-161-266	Nat Science
11	Technical Elective #1	4	CHM 111 General Chemistry I	CHEM 211-213	Major
12	Technical Elective #2	4	CHM 112 General Chemistry II	CHEM 212-214	General Elective
13	Technical Elective #3	4	EGR 125 Introduction to Engineering Methods	ENGR 125T	Info Tech
14	MTH 265	4	MTH 265 Calculus III	MATH 213	Major
15	PHY 232	5	PHY 232 General University Physics II	PHYS 260-261-XXX	Nat Science

16	Social/Behavioral Sciences #2	3	ECO 202 Principles of Microeconomics OR PSY 200 Principles of Psychology OR SOC 200 Principles of Sociology	ECON 103 PSYC 100 SOCI 101	Soc/Behav
17	Humanities/Fine Arts #2	3	ENG 236 Introduction to the Short Story OR ENG 241 Survey of American Literature I OR ENG 242 Survey of American Literature II OR ENG 251 Survey of World Literature I OR ENG 252 Survey of World Literature II OR ENG 253 Survey of African-American Literature I	ENGH 202	Literature
18	MTH 267	3	MTH 267 Differential Equations ¹	MATH 214	Major
19	Technical Elective #4	3	MTH 266 Linear Algebra ²	MATH 203	Major
20	Technical Elective #5	4	BIOL 213 Cell Structure and Function (BENG section only) (Fall only)	BIOL 213	Major

A. S. ENGINEERING DEGREE

TOTAL 69

For academic policies and procedures, please see NOVA catalog - <http://www.nvcc.edu/catalog/index.html>

B.S. Bioengineering

Concentrations: Bioengineering Healthcare Informatics; Biomaterials and Nanomedicine; Biomedical Imaging and Devices; Computational Biomedicine; Neurotechnology and Computational Neuroscience.

NOTE: Students interested in the Bioengineering Prehealth concentration should speak with a Bioengineering Advisor before matriculating. Email bioeng@gmu.edu.

	MASON DEGREE REQUIREMENT	Credits	Course	MASON CORE/DEGREE EQUIVALENT
21	Concentration Courses	4	CHEM 310 Survey of Organic Chemistry (<i>Bioengineering Prehealth students: See Advisor</i>)	Major
22	Bioengineering	3	BENG 214 Physiology for Engineers	Major
23	Bioengineering	3	BENG 230 Continuum Biomechanics and Transport I	Major
24	Bioengineering	4	BENG 240 Biomaterials AND BENG 241 Biomechanics and Biomaterials Lab	Major
25	Bioengineering	3	BENG 320 Bioengineering Signals & Systems	Major
26	Bioengineering	4	BENG 330 Computational Methods in Bioengineering AND BENG 331 Computational Methods in Bioengineering Lab	Major
27	Gen Ed: Global Understanding	3	Approved Global Understanding course ³	Global
28	Gen Ed: Written Communication (Upper-level)	3	ENGH 302 Advanced Composition (Natural Science Section)	Written Comm
29	Mathematics and Statistics	3	STAT 360 Introductory Statistics II	Major
30	Bioengineering	4	BENG 370 Bioinstrumentation and Devices I AND BENG 371 Bioinstrumentation and Devices Lab	Major
31	Bioengineering	3	BENG 350 Neural System Designs	Major
32	Concentration Courses	3	Concentration Specialization Course ⁴	Major
33	Bioengineering	3	BENG 375 Intellectual Property, Regulatory Concepts and Product Development	Major
34	Bioengineering	3	BENG 360 Biomedical Imaging	Major
35	Bioengineering/Synthesis	3	BENG 492 Senior Advanced Design Project I	Major
36	Concentration Courses	3	Concentration Specialization Course ⁴	Major
37	Concentration Courses	3	Concentration Specialization Course ⁴	Major
38	Bioengineering	1	BENG 391 Bioengineering Professional Development	Major
39	Gen Ed: Synthesis/Bioengineering	3	BENG 493 Senior Advanced Design Project II	Synthesis
40	Concentration Courses	3	Technical Elective ⁴	Major
41	Concentration Courses	3	Technical Elective ⁴	Major

B.S. BIOENGINEERING

DEGREE TOTAL 134

Denotes a course that must be taken at George Mason University. Please see your Success Coach to enroll.

Important Academic Information:

¹Students must earn a B- or higher in MTH 267 to progress to Bioengineering coursework at Mason.

²NOVA students must register for Matlab applications to obtain content that is not included in non-Bioengineering sections of Linear Algebra prior to matriculation. Please email bioeng@gmu.edu for registration information.

³For approved Mason Core courses, please visit - <https://catalog.gmu.edu/mason-core/>. If ADVANCE students have at least a 2.85 GPA at the time of matriculation to Mason, students may receive a lower-level General Education waiver and do not need to take this course. Please see your Success Coach for more information.

⁴For approved Concentration Courses and Technical Electives, please visit - <https://catalog.gmu.edu/colleges-schools/engineering/bioengineering/bioengineering-bs/#requirements>

Additional General Notes & Resources:

- Students must complete each BENG, BIOL, CHEM, CS, ECE, ME course presented as part of the required credits for the degree with a grade of C or better.
- ADVANCE students who earn at least a 2.85 cumulative GPA and no more than 9 credits of unrepeatable D/F grades may be eligible to receive a waiver for any lower-level Mason Core courses not already completed. To be eligible for the core waiver, students must also complete the requirements of the AA or AS degree listed on their pathway, and apply to graduate from NOVA by the deadline (see milestone #3). Students must meet these criteria by the time of matriculation to Mason and provide the Office of Admissions a final, official transcript reflecting the degree conferral date.
- For academic policies and procedures, please see Mason catalog - <https://catalog.gmu.edu/policies/>
- Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.